

Date: Wednesday, 20/05/2009 3:28:51 PM
 User: Chantal Lavoie

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : ROUND BILLET 17-4
Job Number : 48092	
Estimate Number : 10040	
P.O. Number :	Part Number : D6104005
This Issue : 20/05/2009 S.O. No. :	Drawing Number : D6104 REV B
Prsht Rev. : NC	Project Number : N/A
First Issue : / / Type : PURCHASED PARTS	Drawing Revision : B
Previous Run : 47478	Material :
Written By :	Due Date : 05/06/2009 Qty: 10 Um: Each
Checked & Approved By : <u>C 09/05/2009</u>	
Comment : Est. A: 01.05.08 New Issue EC	

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

1.0	PG	PURCHASING
-----	----	------------

**Comment:** PURCHASINGIssue P/O: 8830C 09/05/2009

a) Description: S.S round billet

b) Ø4.00" x 5.10" long

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630)

e) One blank makes 2 parts

f) Material certification required

(10)

2.0	D6104005P	17-4 SS Roundbar 4.00"OD
-----	-----------	--------------------------

**Comment:** Qty.: 1.0000 Each(s)/Unit Total: 10.0000 Each(s)

17-4 SS Roundbar 4.00"OD

3.0	PACKAGING 1	PACKAGING RESOURCE #1
-----	-------------	-----------------------

**Comment:** PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure material certification is attached

C 09/06/2009

(10)

4.0	QC6	DIMENSIONAL CHECK
-----	-----	-------------------

**Comment:** DIMENSIONAL CHECK

Ensure Material certification comply to Dwg D6104

SA 09/06/03

(10)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 20/05/2009 3:28:51 PM
User: Chantal Lavoie

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: ROUND BILLET 17-4

Job Number: 48092

Part Number: D6104005

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

machining . MF 09-06-03

6.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/06/04 JG

Job Completion



MF 09-06-03

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

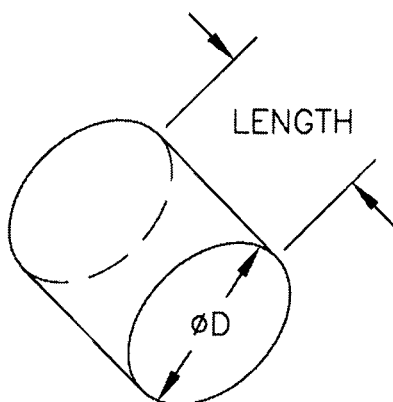
NOTE: Date & initial all entries



DESIGN 27	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED
02.11.25

SPECIFICATION CONTROL DRAWING



MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRc)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

W/O: 48092
C/L: 09/05/20

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

Copyright © 2001 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

007/008

06/02/2009 TUE 15:54 FAX 613 632 4443 DART HELICOPTER SERVICES → DAS - LINDA

P007/008 F-789

514-695-3281

02-06-'09 15:51 FROM:metaux castle

**Castle Metals®**

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 1 of 1

No de Formulaire d'Emballage / Pack Slip No:40040

Expédié de / Ship From:		Vendu à / Sold To:		Expédié à / Ship To:		Livré à / Deliver To:	
Castle Metals Montreal 835-Selkirk Avenue Pointe Claire, QUEBEC H9R 3S2		DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7			
Date d'expédition / Date Shipped	F.O.B.	Modalités de transport / Freight Terms		Transporteur / Carrier	N° du Bon de connaissance / BOL No	N° de livraison / Delivery No	
01-JUN-09	ORIGIN	Prepaid		LOCAL_FLEET	38743	2804854	

Détails d'expédition / Shipment Details			Destination finale / Final Destination Branch -			
N° de commande / Order No	N° de ligne / Line No	N° d'article / Item No	Description			
199973	1	42484.MO	4.0000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN ()			
N° de bon de commande / Purchase Order No		Nbr de pièces / Part Number	Qté commandée / Ordered Qty	Qté Facturée / Invoice Qty	Solde à livrer / Backorder Qty	
8833			10 PCS	10 PCS		
Détails / Details						
Usine / Mill	No de coulee / Heat Number	Code mec / Mech Id	Pièces / PCS	Largeur (Pouce) / Width (IN)	Longueur (Pouce) / Length (IN)	Qté expédiée / Shipped Qty (LBS)
	A10562		10			187.29

Ces marchandises technologiques sont sujettes aux règlements de l'Expert Administration et du département des Etats-Unis. Si elles ont été importées, elles doivent se conformer à ces règlements. Toute modification du contrat de transport contraire aux lois des Etats-Unis est interdite.
These commodities/technologies are subject to US Expert Administration & US State Dept. Regulations and, if imported for export, warware exportation. Deviation contrary to US Law is Prohibited.

Nous certifions par la présente que le matériel couvert par cette certification est conforme aux spécifications énumérées et aux exigences applicables pour le matériel, y compris toute spécification faisant partie de la description. Les rapports d'essais sont archivés pour fins de consultation. Toute requête concernant du matériel défectueux sera rejetée à moins qu'elle ne soit faite par écrit à A.M. Castle & Co. dans les 60 jours suivant la livraison. Le matériel expédié sur mesure ou coupé par le client ne peut être retourné pour défaut.
We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material/ware-wared unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Ce matériel a été reçu et inspecté par
This material has been received and inspected by:

Date:

02-06-'09 15:51 FROM-metalex castle

514-695-3281

T-223 P008/008 F-789



Certificate of Test

PO BOX 977
SYRACUSE, NY 13201-0977
 B
O
L
D
T
O
A M CASTLE, INC
6400 N WOLF RD
FRANKLIN PARK, IL 60131

 S
H
I
P
T
O
A M CASTLE, INC
28800 MILES RD
BEDFORD HEIGHTS, OH 44148
OUR ORDER NO.
P5-17402-8-01DATE
02/23/09CUSTOMER ORDER NO
10-41871

CUSTOMER REQ NO

DISTRICT
B PARSONSSHIPPED FROM
SYRACUSE

DESCRIPTION OF MATERIAL

 SA 0506103
 CRU 17-4PH RT A IAC 42464
 AMT-3174-10 REV 8 ASME-SA564-07ED T630 ASTM-A564-04 T630 AMS-2303E
 AMS-5643R (EX SURFACE) AISI 630 UNS# S17400
 DFARS 252.225-7014 ALT 1

HEAT NO.

CHEMICAL ANALYSIS

HEAT NO.	C	MN	P	S	SI	NI	CR	MO	CU	CH	TA
A10562	.040	.42	.030	.025	.51	4.17	15.29	.18	3.15	.28	.012

QUANTITY HEAT NO.

MECHANICAL PROPERTIES

QUANTITY	HEAT NO.	TENSILE PSI	YLD.2%PSI	ELONG4D	RED/AREA%	HARDNESS
2174 #	A10562	204,620	178,420	13.8	52.6	BHN 330

CAPABILITY PHYSICALS AFTER 900 DEG. F. - 1 HR. AIRCOOL:
204,620 178,420 13.8 52.6 BHN 415

MACRO TEST OK

FERRITE 3 %

MAGNAFLUX F/S = 0/0

ELECTRIC FURNACE AOD MELTED

REDUCTION RATIO: 16.5:1

MATERIAL SOLUTION TREATED AT 1900 DEG. F. HELD 1 HOUR

AT TEMPERATURE -

AIRCOOLED.

CRUCIBLE MATERIALS CORP. VENDOR #18610.

MATERIAL INGOT CAST.

NAPTA - YES

CASTLE METALS CORP.

DATE RCVD 3/2/09

IAC 4/24/09

APPROVED BY (Signature)

MATERIAL FREE FROM MERCURY CONTAMINATION AT TIME OF SHIPMENT. NO WELD REPAIR PERFORMED. AND MATERIAL MELTED IN U.S.A.

 THE ABOVE MATERIAL WAS MANUFACTURED AND TESTED ACCORDANCE WITH ABOVE
 SPECIFICATIONS AND IS IN CONFORMANCE WITH THE SPECIFICATION REQUIREMENTS.
 CRUCIBLE MATERIALS CORPORATION ACTING BY AND THROUGH ITS SPECIALTY METALS DIVISION

CERTIFIED BY

(Signature)

DANA A. GUSANO - QUALITY ASSURANCE REPRESENTATIVE